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Original Article

Evaluation of Children's Use of Oral Health Products, Familiarity of Parents With These Products, and Their Availability

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Abstract

Background: In addition to mechanical methods, mouthwash, toothpaste, and fluoride gels are high-performance methods that can play an important role in reducing plaque and preventing caries in children. The purpose of this study was to determine the availability and use of oral health products related to children, and the familiarity of parents with methods to prevent decay.

Methods: In this cross-sectional study, a checklist containing questions about the familiarity of parents with and the use of products related to children's oral health was prepared and then completed by 325 parents of children aged 6 to 9 years who referred to the pediatric department dental clinics of the School of Dentistry. A dental student obtained information about the availability of products from pharmacies using a checklist. Data were analyzed with descriptive statistics and linear regression tests using SPSS 26 software.

Results: This study showed that parents were relatively familiar with some health products such as dental floss and children's toothpaste and mouthwash, but the information of parents was not enough on products such as casein phosphate, xylitol, and fluoride gel. About 40% of the pharmacies did not have finger toothbrushes or children's toothbrush brands. One third of pharmacies did not have children's mouthwash. No pharmacy had fluoride gel.

Conclusion: This study showed that parents' familiarity with children's oral health products was low. Action should be taken to increase the awareness of parents. The reason for the lack of products in pharmacies should also be investigated and the existing obstacles to access them should be alleviated.

Keywords: Mouthwash, Oral health, Fluoride gel

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Introduction

Tooth decay is considered a biological process in which the irreversible degradation of the hard tissue of the tooth occurs due to the presence of acid produced by some groups of bacteria (1,2). To control tooth decay, it is strongly suggested that eating habits be modified, the consumption of carbohydrates be reduced, and suitable toothbrushes and toothpastes be used at least twice a day (3,4). Fluoride is an element that affects the strength of tooth enamel and helps reduce tooth decay in children (5). Parents' awareness of their children's oral health is considered an essential component of preventing oral disease (6). In addition, parents' lack of knowledge about oral health affects their children's attitude, behavior, and future oral health (7,8). Removing microbial plaque mechanically is the best method of oral hygiene, but it requires motivation and time. Therefore, the use of anti-plaque agents is an auxiliary method for preventing tooth decay (9,10). Anti-plaque agents in the form of mouthwash, toothpaste, gum, and gel play an important role in reducing microbial plaque (11). Recent studies have shown that families have taken the provision of toothbrush and toothpaste for their children seriously. Although parents try to provide toothbrush and toothpaste for their children, sometimes the toothbrushes and toothpastes available may not have the necessary

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quality to help maintain tooth health.

The American Dental Association has approved several brands of toothbrush and toothpaste that have the necessary quality to improve oral and dental health, so that users can make the right choice in buying them. However, in many countries, there is still no responsible scientific institution that checks and confirms the quality of domestically produced toothbrushes and toothpastes. Therefore, consumers select and buy toothbrushes based on the producers' brochures, the information on the toothbrush covers, or the advice of others.

Given the lack of information about children's use of oral health products and the inadequacy of parents' information about these products, this study was conducted to determine the use of oral health products, the parents' familiarity, and the kinds of toothbrushes, toothpastes, and mouthwashes related to children's oral health that are available in the pharmacies of Kerman, Iran.

Methods

This was a cross-sectional study conducted under the ethics code IR.KMU.RC.1400.298 from Kerman University of Medical Sciences. This study was carried out in two parts. First, assessing awareness about the products and their use. Second, determining the availability of these products in pharmacies in Kerman.

In the first part of this cross-sectional study, 325 parents of 6- to 9-year-old children who visited the dental clinics of the Dental School of Kerman University of Medical Sciences participated after providing informed consent. Convenience sampling was done from the dental faculty and four clinics that had active children's departments.

The inclusion criteria were having Iranian nationality, living in Kerman city for the last two years, and having at least one 6- to 9-year-old child. The exclusion criteria were not agreeing to cooperate and not signing the consent form.

Using a sample size formula, with an alpha level of 95%, a marginal error of 6%, and a population proportion of 56% (12), it was determined that 264 parents needed to be included, and after considering 15% dropout, 325 individuals were selected.

Parents completed a checklist that included demographic information, 6 questions about parents' familiarity with oral health products, and 6 questions about their children's product use. The questions have been listed in Table 1 and 2. A "yes" answer was given a score of 1 and a "no" answer was given a zero score. The necessary explanations were given to the parents by one of the researchers.

In the second part of the study, data related to the availability of products were collected from pharmacies using a checklist. For data collection, a number of private and hospital pharmacies were randomly selected from the five districts of Kerman.

Regions 1 and 5 had the lowest number of pharmacies. Therefore, four private pharmacies and one hospital pharmacy were selected from these two regions. Region 2 had the largest number of pharmacies and nine private pharmacies and one hospital pharmacy were selected from this region. From region 3, six private pharmacies and from region 4, five private pharmacies were selected. One hospital pharmacy was selected from each of these two regions (Figure 1).

The researchers visited the selected pharmacies, and oral health products were identified and their commercial names were recorded in the checklist.

For data analysis, we used SPSS 26. Fisher's exact test was used to compare the availability of products in the regions, and linear regression was used to examine the factors affecting the familiarity and use of products and the total score of the questionnaire.

Table 1. Demographic characteristics of the research subjects

Variable		Number	Percent
Parents gender	Male	227	76.7
	Female	69	23.3
Child gender	Male	152	51.4
	Female	144	48.6
Child age	6 years old	85	28.7
	7 years old	70	23.6
	8 years old	77	26.1
	9 years old	64	21.6
Parents education	Middle school diploma	13	4.4
	Diploma	107	36.1
	Associate degree	30	10.1
	Bachelor	108	36.5
	Master	33	11.2
	Doctorate	5	1.7
Location	University	60	20.3
	Red crescent clinic	60	20.3
	Shariatmadari clinic	58	19.6
	Abolfazl clinic	59	19.9
	Oral pearl clinic	59	19.9

Table 2. The frequency of parents' familiarity with children oral health products

Questions	Yes No. (%)	No No. (%)
Are you familiar with children's toothpastes?	264 (89.2)	32 (10.8)
Are you familiar with products containing xylitol?	24 (8.1)	272 (91.9)
Are you familiar with fluoride mouthwash?	237 (80.1)	59 (19.9)
Are you familiar with gels containing fluoride?	127 (42.9)	169 (57.1)
Are you familiar with products containing casein phosphate?	17 (15.7)	279 (94.3)
Are you familiar with dental floss?	284 (95.9)	12 (4.1)

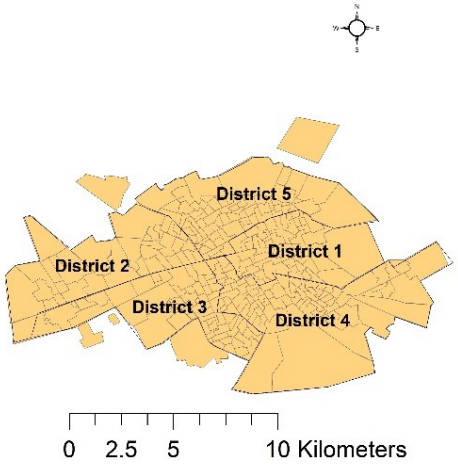

Figure 1. Kerman district map

Results

In total, 325 parents participated in this study, but 29 incomplete checklists were excluded from the study. Finally, 296 parents were included in the study (Table 1).

As shown in Table 2, the highest number of positive answers were related to familiarity with dental floss (95.9%) and the fewest positive answers were related to familiarity with products containing casein phosphate (15.7%).

As shown in Table 3, the lowest use was related to casein phosphate products (2%) and the highest use was related to children's toothpaste (78.7%).

The average scores of parents' familiarity were 3.2 ± 1.0 (out of 6). The average scores of children's product use were 1.1 ± 2.0 (out of 6), and the total questionnaire scores were 5.2 ± 1.9 (out of 12).

Multivariate test results using linear regression method to investigate the simultaneous effect of demographic variables on dependent variables are shown in Table 4.

With the increase in education and age of the parents, the scores showed a significant increase. The gender of the child and parents, the age of the child, and the location of data collection did not show any significant effect.

In the second part of the study, 33 pharmacies were investigated, of which 28 pharmacies (84.9%) were private and five pharmacies (15.1%) were affiliated with governmental hospitals. The results showed that none of the pharmacies had any kind of fluoride gel that could be used at home. Ten pharmacies (30.3%) did not have fluoride mouthwash for children. Table 5 shows the number of pharmacies with children's mouthwash, toothpaste, toothbrushes, and finger toothbrushes for children by district.

Discussion

The purpose of this study was to determine the use of oral health products related to children and the familiarity of parents with methods to prevent decay. The study showed that parents were relatively familiar with some health products such as dental floss, toothpaste, and mouthwash. but the familiarity of parents with products such as casein phosphate, xylitol, and fluoride gel was inadequate. About 40% of the pharmacies did not have finger toothbrushes and children's toothbrush brands. One third of pharmacies did not have children's mouthwash. No pharmacy had fluoride gel. There are few studies similar to this study in Iran and in other countries. Studies similar to our study on the knowledge, attitude, and performance of parents in different countries, such as Iran (12,13), Saudi Arabia (14,15) and India (16), have shown that many parents are concerned about their children's oral health and their knowledge about children's oral health is not optimal.

Based on the results of our study, with increase in the education and age of the parents, the scores showed a significant increase, which is in line with other studies. A study by Shaghaghian et al in Iran showed that parents with better knowledge had a higher socio-economic status and their children had better oral and dental health (13). In a study by Al-Haj Ali and Alshabaan in the central region of Saudi Arabia, parents' knowledge about oral health and care of preschool children, especially in issues related to the best oral health practices, the appropriate time for the first dental visit, and the best time to give sweets to the child, was inadequate. In that study, parents with a high level of education and family income and parents who acknowledged the importance of teeth were more aware. Also, they reported that there was association between children's age and use of dental facilities (14). Although our study was about familiarity with oral health products, just as in the above studies, parents' familiarity with health products was low. It seems the concept of oral health education must be more highlighted for Iranian families, just as it should be in many other countries.

According to the present study, more than half of the pharmacies had some brands of children's toothbrushes. At least one brand of children's toothpaste was available in most pharmacies. About one third of the pharmacies did not have children's mouthwash and none of the pharmacies had fluoride gel that could be used at home. Hajizamani et al emphasized that pharmacists are the first people who are consulted in the field of oral health products and showed that pharmacists' awareness of oral health is not very good (17). The non-availability of fluoridated gel that can be used at home in any of the pharmacies can also indicate that pharmacists may not be well aware of the importance of these products. However, the price of these products should be considered. A study by Dutra et al in Brazil found that the price of oral health products often has a great effect on family purchase, affecting pharmacists' decision in providing these products (18).

Training pharmacists and increasing their knowledge

Table 3. The frequency of children's use of the oral health products, based on parents' answers

Questions	All of the parents		Parents who were familiar with children's oral health products	
	No No. (%)	Yes No. (%)	No No. (%)	Yes No. (%)
Have you used children's toothpaste for your child?	233 (78.7)	63 (21.3)	233 (88.3)	31 (11.7)
Has your child used products containing xylitol?	12 (4.1)	284 (95.9)	12 (50.0)	12 (50.0)
Has your child used mouthwash containing fluoride?	140 (47.3)	156 (52.7)	140 (59.1)	97 (40.9)
Has your child used fluoride gels?	50 (16.9)	246 (83.1)	50 (39.40	77 (60.6)
Has your child used casein phosphate products?	6 (2.0)	290 (98.0)	6 (35.3)	11 (64.7)
Do you use dental floss for your child?	155 (52.4)	141 (47.6)	155 (45.4)	129 (4.1)

Table 4. Effect of demographic variables on dependent variables

Independent variable	Parents' familiarity with children's oral health products		Children's use of the oral health products	
	β	*P* value	β	*P* value
Parent's gender (female)	-0.083	0.538	0.038	0.810
Child's gender (girl)	0.104	0.35	0.103	0.42
Child's age	0.002	0.96	-0.093	0.12
Parent's age	0.352	0.0001	0.247	0.0001
Parent's education	-0.028	0.48	0.034	0.46

Table 5. Number of pharmacies that sell children's mouthwash, toothbrushes, and toothpaste and finger toothbrushes by district

Availability	Mouthwash		Finger toothbrush		Toothbrush		Toothpaste	
	Yes	No	Yes	No	Yes	No	Yes	No
Region 1	3	2	2	3	3	2	4	1
Region 2	8	2	7	3	8	2	9	1
Region 3	5	2	6	1	3	4	7	0
Region 4	4	2	2	4	3	3	5	1
Region 5	3	2	3	2	4	1	5	0
P value[a]	0.908		0.320		0.504		0.737	

[a] Fisher exact test.

about the importance of children's oral and dental health can be an incentive for them to provide these products in their pharmacies, and using dental hygienists in pharmacies can be a suitable approach for better introduction of oral health products to customers.

This study was the first to assess the use of oral health products, familiarity of parents with these products, and their availability in pharmacies. Therefore, it can be effective in the promotion of oral health in the community. However, this study has some limitations. Some of the pharmacies were less cooperative in completing the checklist. Also, due to the limited import of health products due to economic sanctions, the variety of health products was low.

Conclusion

This study showed that parents' familiarity with children's oral health products and children's use of these products were low. Measures, such as informing people using the media and meetings in schools, should be taken to increase the awareness of parents. The reason for the lack of products in pharmacies should also be investigated, and the existing obstacles should be removed to increase access to these products.

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Competing Interests

The authors declare no conflict of interests in the present study.

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